REMARKS/ARGUMENTS

Claims 146-151 are pending. Claims 1-145 have been cancelled, and claims 146-154 have been newly added. Reconsideration is respectfully requested.

1. Rejection of Claims 104-114 Under §112, First Paragraph

Claims 104-114 stand rejected under 35 U.S.C. 112, first paragraph as failing to comply with the enablement requirement because LEDs and LED arrays are not disclosed in a manner to provide the requisite fluence, pulse duration and peak power in the size required. Claims 104-114 have been cancelled, thus rendering this rejection moot.

2. Rejection of Claims 1, 27-35, 43-56, 60, 63-73, 78-89, 92-101, 104-114 Under §112

Claims 1, 27-35, 43-56, 60, 63-73, 78-89, 92-101, 104-114 stand rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for allegedly reciting conflicting light levels and omitting essential elements.

A. Conflicting Light Levels

These claims have been cancelled, thus rendering this rejection moot.

However, Applicants submit that the light levels in the cancelled claims were not conflicting. What needs to be appreciated is that the eye safety of light emitted from a device is not determined exclusively by the output fluence of the device (typically expressed in joules per square centimeter), but also by the optical qualities (e.g. divergence and spatial coherence) of such emitted light. For example, a laser beam of fluence F but with very low divergence can be very unsafe to the eye, because the lens of the eye will focus that beam down to a very spot size on the retina (whereby the fluence on the retina can easily be tens of thousands of times greater than the fluence on the front of the eye). However, that same laser beam of fluence F but with a very high divergence and with poor spatial coherence (e.g. through the use of a diffuser) could be determined to be eye safe, because the lens of the eye cannot focus such light down to a small

enough spot size to damage the retina. Therefore, when considering whether a light source is eye safe as defined in the specification, the fluence and quality of the light must be considered. The advantage of the present invention is that it can generate a very high fluence of light at the output aperture of the device (for treating skin), yet the quality of the light is such that if the light inadvertently travels into the eye, no damage to the eye results (i.e. it is eye safe).

Pages 48-56 of the specification describe how one determines whether a particular light source is eye safe. There are several ways to quantify if a light source is eye safe, all based upon the same International Standard for Safety of Laser Products (IEC 60825-1). One way is to determine that f_{cornea} is less than the defined Maximum Possible Exposure (MPE) for all possible distances between the source and the eye (see specification, p. 49:3- p. 50:19). F_{cornea}, however, is not merely the fluence of the light on the cornea, but rather a calculated value that takes into account the fact that as the eye approaches the light source, at some point it can no longer focus on the source (and therefore cannot focus all the light onto the same small spot on the retina). This is why F_{cornea} is defined as fluence that can pass through a pair of apertures limiting the angle of acceptance to 100 milliradians (see specification, p. 49:12-14), which takes into account the focusing ability of the human eye. Thus, for light sources, the hazard to the eye is determined at a certain distance away from the source. If the device is eye safe at that point, then the source is eye safe for all distances from the light source. As is clear from pages 48-56 of the specification, there is no need to claim a human eye to capture this concept.

Another way to express this concept of eye safety is to consider the fluence of the light at a distance "r" from the output aperture of the device, and determine if the fluence at that point is below MPE. That distance "r" can be defined as that distance from the output aperture at which an angular subtense of the output aperture equals 100 milliradians. It is at this location that the hazard to the eye reaches a maximum, because any closer, and the eye loses its ability to focus the light onto a small region of the retina, and further away, the fluence on the eye decreases.

Thus, claim 146 has been newly added to more particularly recite what the Applicants regard as the invention. Claim 146 recites that the light source produce a fluence greater than 4

J/cm^2 at the output aperture (for effective treatment), but that the fluence of the light be below MPE at the distance r from the output aperture where the angular subtense of that aperture equals 100 milliradians. It is submitted that the newly added claims are fully supported by the specification, and no new matter has been added. Specifically, p. 49:12-14 discusses the concept of angular subtense, and the critical value of 100 milliradians for calculating eye safety (see also p. 49:5-11, 53:6-10, and p. 54:3-9). It is also submitted that the pending claims are consistent with the previous election of claims, given claim 146 is eye safety based on MPE.

B. Omission of Essential Elements

The Examiner states that claims 46-47, 83-84, 95-96 and 108-109 are incomplete for omitting essential elements, namely, means for maintaining the temperature of the heatsink below normal skin temperature. These claims have been cancelled. Additionally, claim 149 now recites a heat removing element for maintaining this temperature. Support thereof can be found on page 15, lines 27+, and therefore no new matter has been added.

3. Rejection of Claims 43-44, 46, 48-49, 60 and 64-65 Under §102(e)

Claims 43-44, 46, 48-49, 60 and 64-65 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2004/0225339 (Yaroslavsky). These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky fails to teach the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), with insufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

4. Rejection of Claims 1 and 27-32 Under §103(a)

Claims 1 and 27-32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0004499 (McDaniel) in view of U.S. Patent 6,273,885 (Koop). These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that McDaniel and Koop fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, McDaniel teaches an output as high as 4 watts/cm^2, and pulses as long as 850 ns (thus producing a fluence well below 4 J/cm^2) (see ¶14), and Koop teaches light delivery without a diffuser, and neither has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

5. Rejection of Claims 33-35 Under §103(a)

Claims 33-35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel in view of Koop, and further in view of U.S. Patent 5,743,901 (Grove). These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that McDaniel, Koop and Grove fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, McDaniel teaches an output as high as 4 watts/cm^2, and pulses as long as 850 ns (thus producing a fluence well below 4 J/cm^2) (see ¶14), Koop and Grove teach light delivery without a diffuser, and none of these references

has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

6. Rejection of Claims 45, 47 and 50-53 Under §103(a)

Claims 45, 47 and 50-53 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky and Koop. These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky and Koop fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), and Koop also teaches light delivery without a diffuser, and neither has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

7. Rejection of Claims 54-56 and 66-68 Under §103(a)

Claims 54-56 and 66-68 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky and Grove. These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky and Grove fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), and Grove also teaches light delivery without a diffuser, and

neither has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

8. Rejection of Claims 63 and 72-73 Under §103(a)

Claims 63 and 72-73 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky and McDaniel. These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky and McDaniel fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), and McDaniel teaches an output as high as 4 watts/cm^2, and pulses as long as 850 ns (thus producing a fluence well below 4 J/cm^2) (see ¶14), and neither has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

9. Rejection of Claims 69-71 Under §103(a)

Claims 69-71 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky and U.S. Patent 6,494,900 (Salansky). These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky and Salansky fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light

source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), and Salansky also teaches light delivery without a diffuser, and neither has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

10. Rejection of Claim 78 Under §103(a)

Claim 78 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky and U.S. Patent 4,905,690 (Oshiro). This claim has been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky and Oshiro fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), and Oshiro also teaches light delivery without a diffuser, and neither has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

11. Rejection of Claims 79-85, 88-89, 92-97 and 100-101 Under §103(a)

Claims 79-85, 88-89, 92-97 and 100-101 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky, McDaniel, Grove and Koop. These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky, McDaniel, Grove and Koop fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye

safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), McDaniel teaches an output as high as 4 watts/cm^2, and pulses as long as 850 ns (thus producing a fluence well below 4 J/cm^2) (see ¶14), Grove and Koop teach light delivery without a diffuser, and none of these references has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

12. Rejection of Claims 86-87 and 98-99 Under §103(a)

Claims 86-87 and 98-99 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Yaroslavsky, McDaniel, Grove, Koop and Oshiro. These claims have been cancelled, thus rendering this rejection moot.

Additionally, Applicants respectfully submit that Yaroslavsky, McDaniel, Grove, Koop and Oshiro fail to teach or suggest the dermatologic apparatus of pending independent claim 146, which includes a divergent light source and a diffuser that increases divergence and decreases spatial coherence for producing a light pulse greater than 4 J/cm^2 at its output aperture yet is eye safe (fluence at a distance r is below MPE as recited and defined therein). Instead, Yoroslavsky teaches light source 71 producing light that passes through a filter 73, transparent element 74 and output window 76 (see ¶¶ 93 and 94), McDaniel teaches an output as high as 4 watts/cm^2, and pulses as long as 850 ns (thus producing a fluence well below 4 J/cm^2) (see ¶14), Grove, Koop and Oshiro teach light delivery without a diffuser, and none of these references has sufficient teaching or suggestion of the requisite output aperture fluence and beam quality to render the device both effective for treatment and eye safe as claimed.

For the above reasons, it is respectfully submitted that the pending claims are allowable, and action to that end is respectfully requested.

Respectfully submitted,

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